

# Actuarial Review of POR

Presented to the Public Retirement  
Systems Committee

**Patrice A. Beckham, F.S.A.**  
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A MILLIMAN GLOBAL FIRM

**Milliman**

*Consultants and Actuaries*

# ***Discussion Topics***

- **2007 Experience Study Findings**
- **7/1/07 Valuation Results**
- **Long Term Funding**



# ***Actuarial Valuations***

- **Best estimate of ultimate costs**
- **Requires use of assumptions**
  - **When?**
  - **How much?**
  - **How long?**
- **Assumptions should represent the best estimate of future experience**
- **Each assumption should be individually reasonable**



# ***Experience Study***

- **Periodic in-depth analysis of experience**
- **Review actuarial methods Review current assumptions**
  - **How well did they model actual experience?**
  - **Should they continue to be used?**
- **Input from System and its advisors also considered**
- **Professional judgment**



# ***Actuarial Assumptions***

- **No “correct” assumptions**
  - Blend of art and “science”
  - Range of acceptable assumptions
- **Assumptions are long term estimates**
  - Experience emerges short term
  - Year to year fluctuations expected
- **“Liability risk” associated with choice of assumptions**
- **Final decision resides with Board**



# ***Actuarial Methods***

- **Current method: Aggregate**
  - **Prefer Entry Age Normal Method**
    - ✓ **Provides more information**
    - ✓ **Direct calculation of gain/loss**
    - ✓ **Identifies short/long term impact of benefit changes**
- **No change to asset valuation method**
  - **Implemented in 2001**
  - **Acceptable method**



# ***Economic Assumptions***

- **Lower expectation for inflation**
- **Rate of return**
  - **Dependent on asset allocation**
  - **Developed reasonable range of 6.57% to 9.46%**
  - **50<sup>th</sup> percentile: 7.35%**
  - **Asset allocation in progress**
- **Wage growth about the same**



# ***Summary of Economic Assumption Recommendations***

	<u>Current</u>	<u>Proposed</u>
Investment Return	8.00%	8.00%*
Inflation	3.50%	3.25%
General Wage Increase		
- Inflation	3.50%	3.25%
- Productivity	0.50%	0.75%
- Total	4.00%	4.00%
Postretirement Escalator	4.00%	4.00%

\*Pending review after asset allocation study completed.



# Summary of Demographic Assumptions

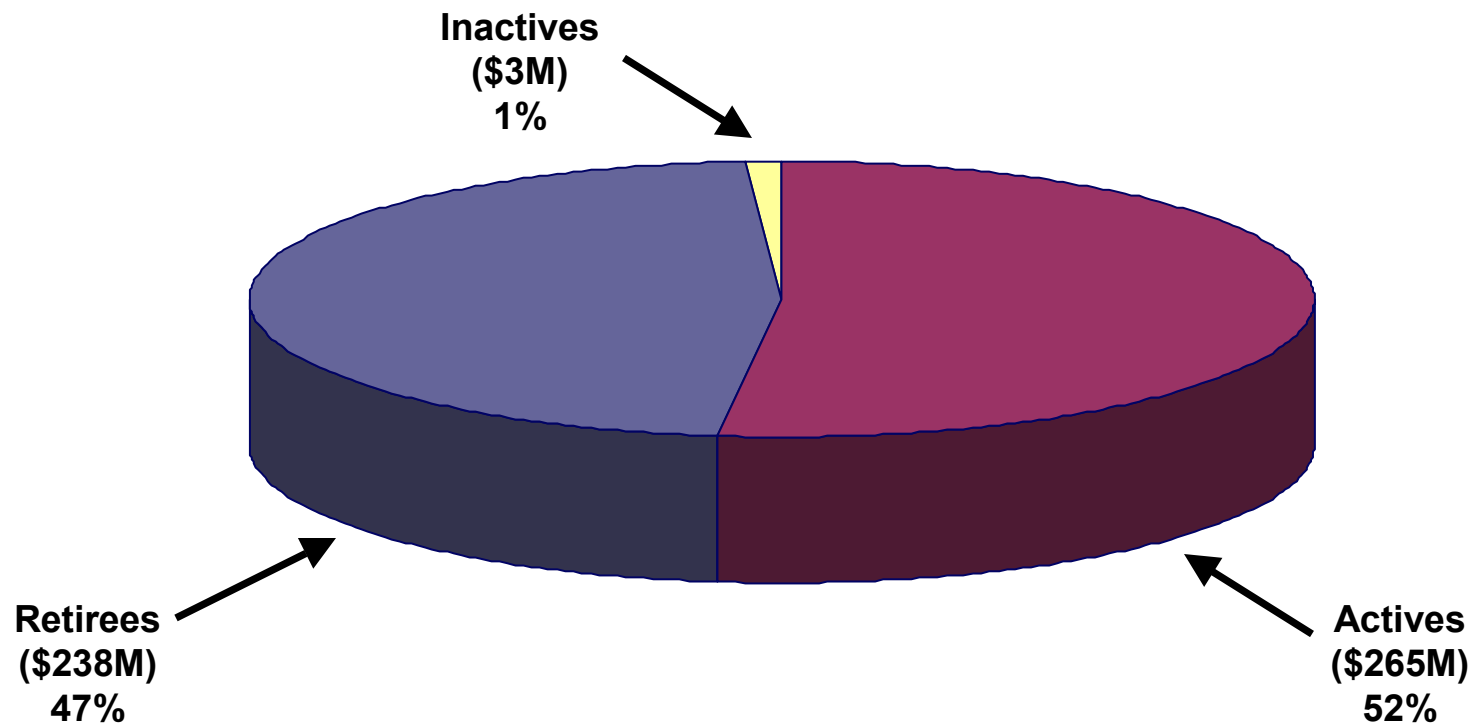
	Current	Proposed
Salary Increases	Service Based	Overall lower rates
Retirement Rates	Age Based	Adjustments at ages 59 - 61
Mortality		
- Healthy	1983 GAM Table	RP 2000 Table - generational
- Disabled	1983 GAM Table set forward 5 years	RP 2000 Table - generational set forward 5 years
Termination of Employment	Service Based	Increase rates and extend table to 20 years
Disability	Age Based	Increase accidental disability rates

# ***POR Valuation Results***

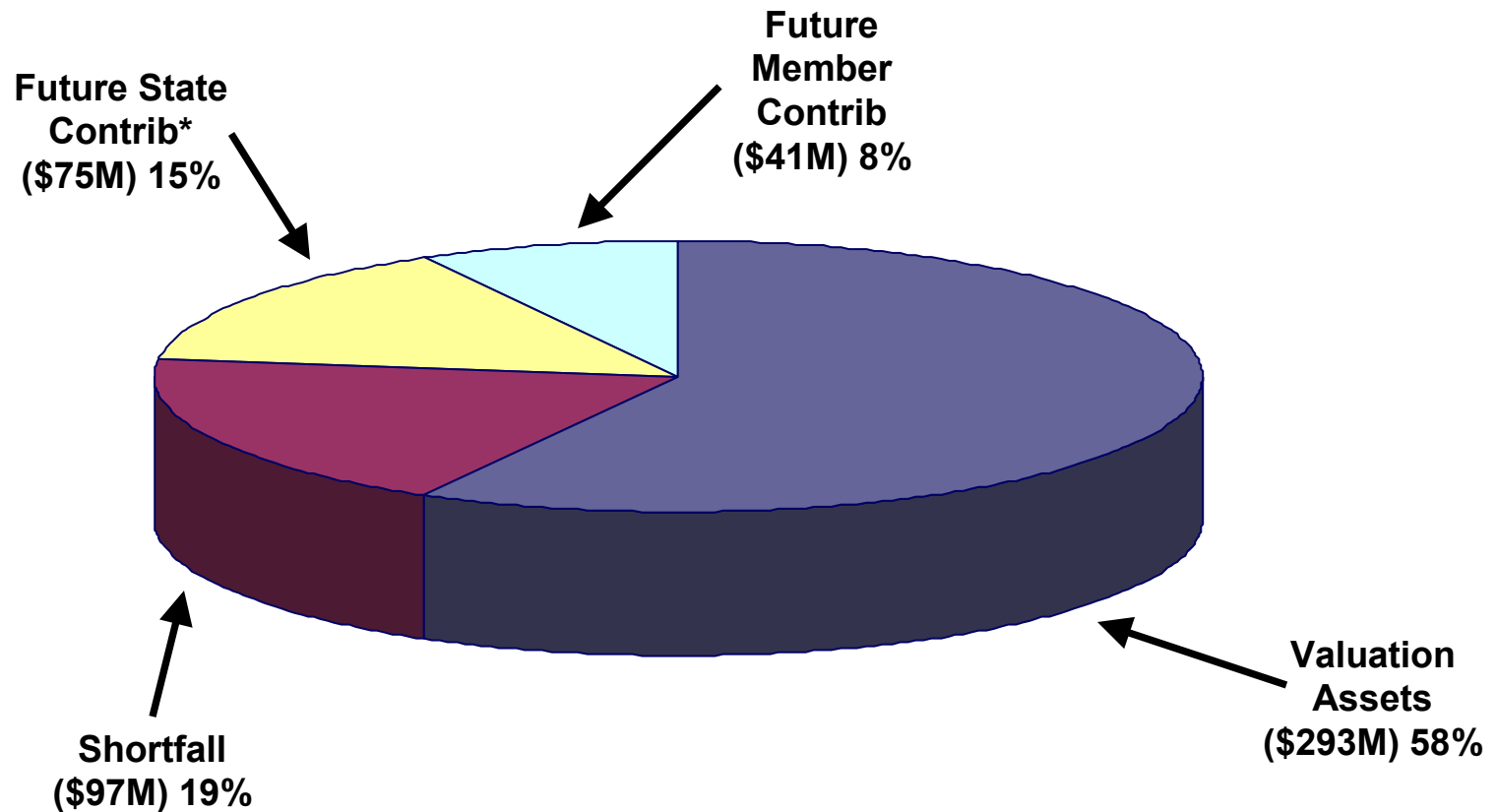
- **Rate of Return for FY07**
  - **Market: 14%**
  - **Actuarial: 13%**
  - **Favorable experience recognized: \$12M**
  
- **Asset Values**
  - **Market value: \$310M**
  - **Actuarial Value: \$293M**
  - **Deferred Gain: \$17.2M**
    - ✓ Available to offset unfavorable experience in future or improve funding

# ***Measurement of Liabilities***

## **Present Value of Future Benefits (\$506)**

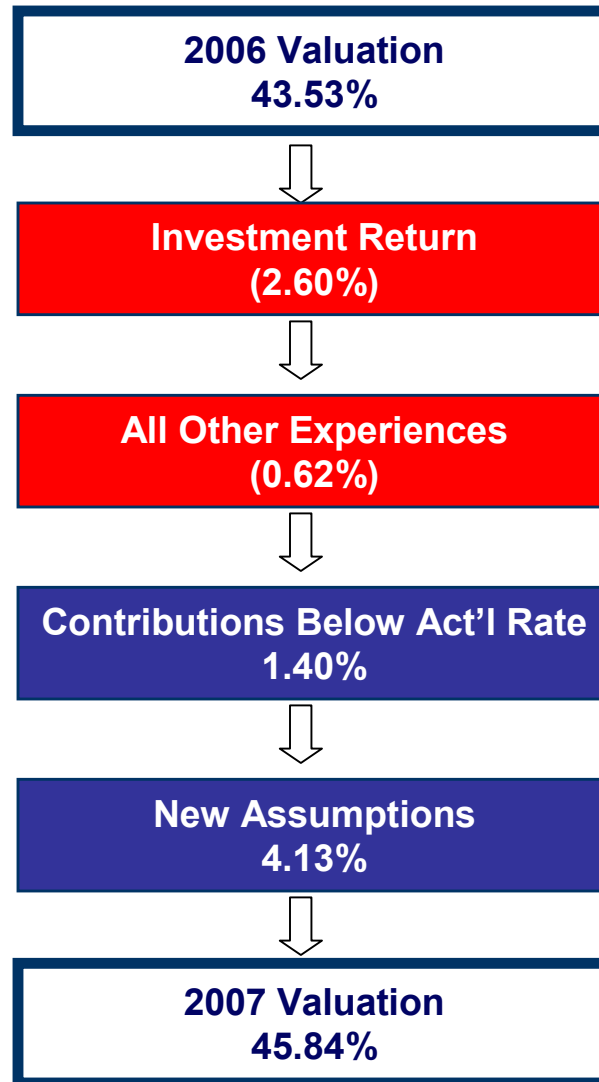


# Resources to Meet Liabilities of \$506M

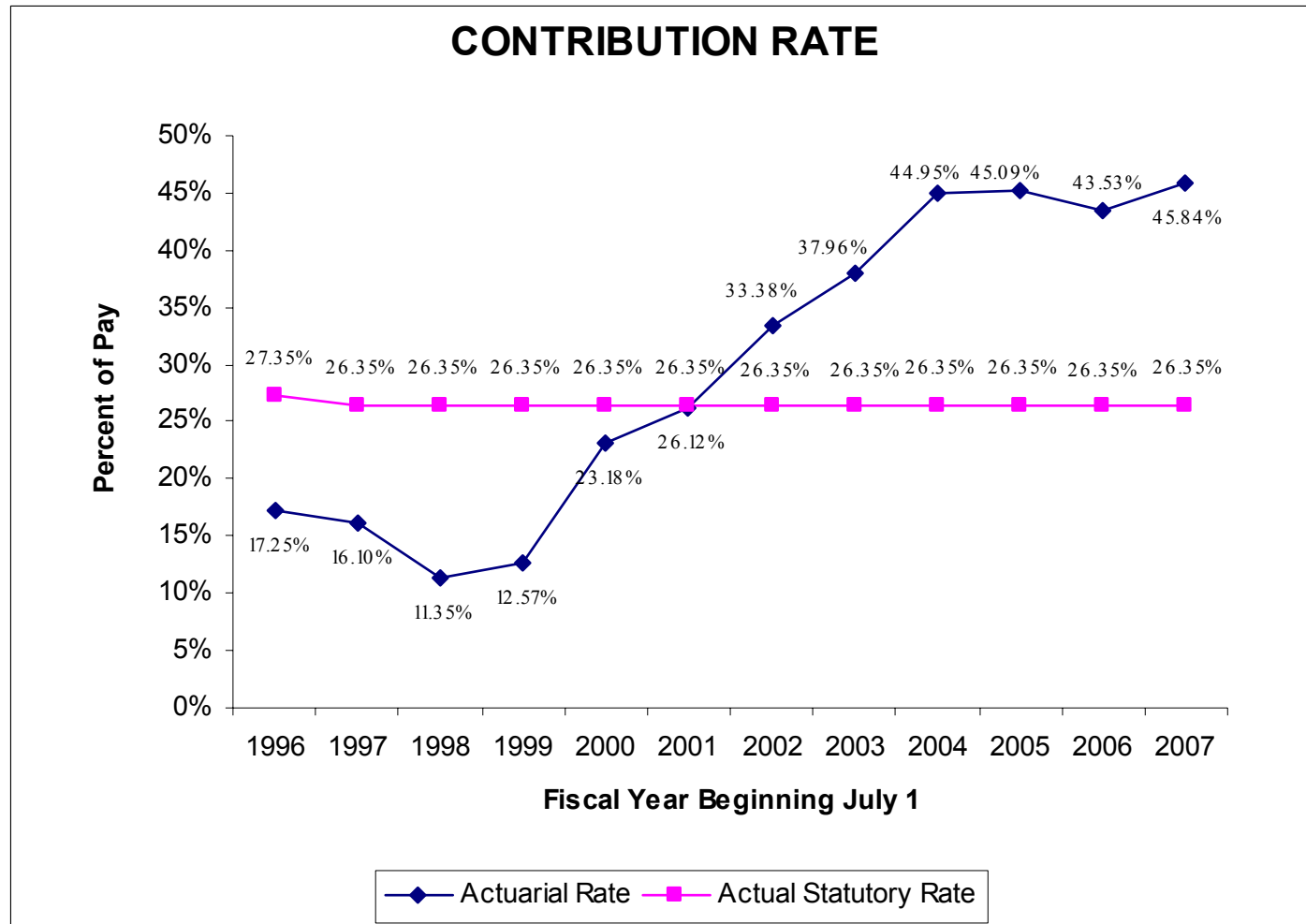


\* Assuming 17% of Covered Payroll

# ***Change in Contribution Rate***



# Historical Contribution Rates



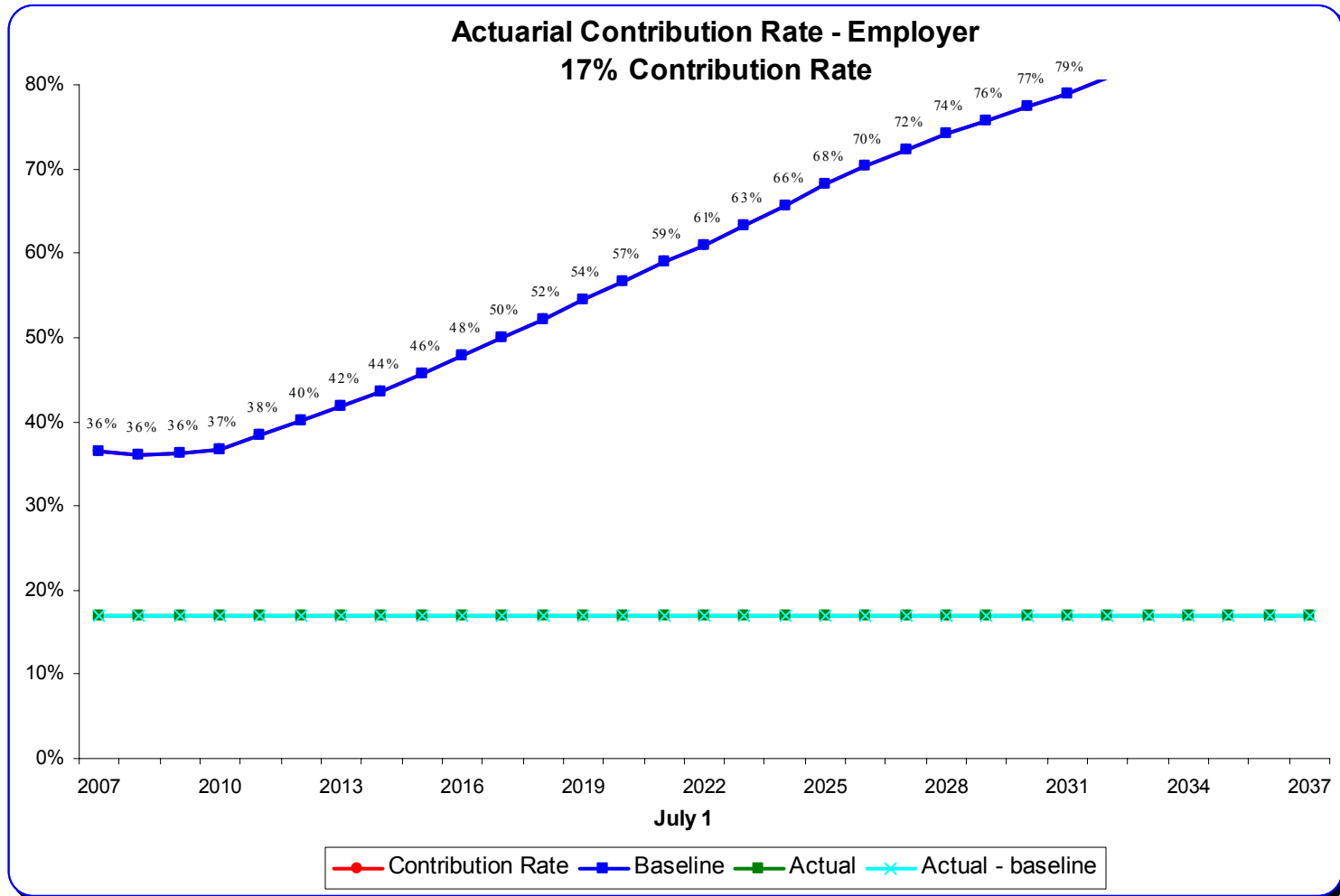
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# Contribution Shortfall

	<u>2007</u>	<u>2006</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
Total Contr. Rate	45.84%	43.53%	45.09%	44.95%	37.96%	33.38%
Less Member Rate	<u>9.35%</u>	<u>9.35%</u>	<u>9.35%</u>	<u>9.35%</u>	<u>9.35%</u>	<u>9.35%</u>
State Portion	36.49%	34.18%	35.74%	35.60%	28.61%	24.03%
Appropriated Rate	17.00%	17.00%	17.00%	17.00%	17.00%	17.00%
Shortfall	19.49%	17.18%	18.74%	18.60%	11.61%	7.03%
Expected Payroll (M)	\$37.3	\$36.2	\$33.3	\$32.5	\$33.0	\$32.8
Estimated Shortfalls (M)	\$7.3	\$6.2	\$6.2	\$6.0	\$3.8	\$2.3



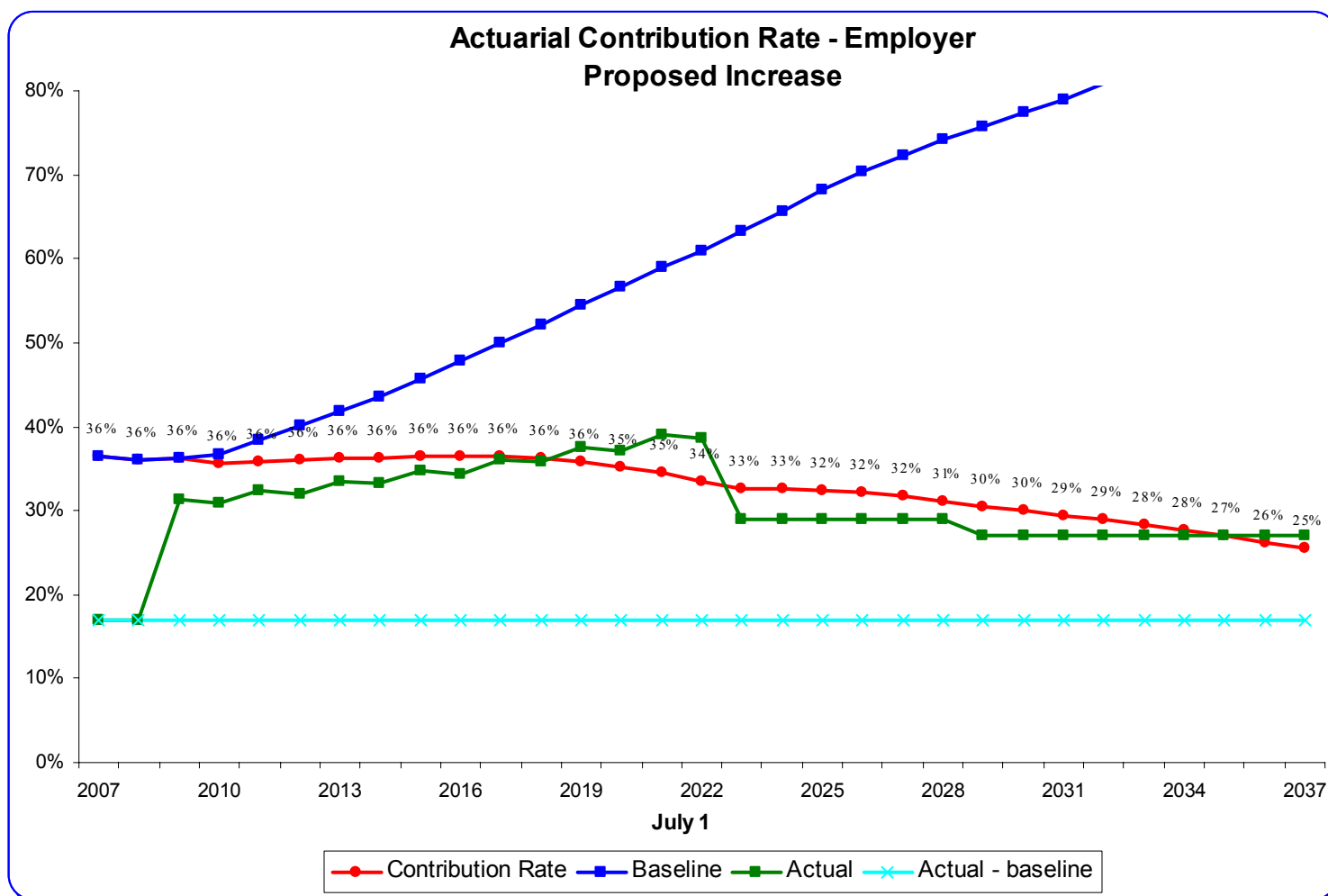
# Long Term Funding



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# Comments

- **Positive investment experience on both market and actuarial values**
- **Actuarial assets < market value: deferred gains**
- **If only 17% is actually contributed by State, actuarial contribution rate will increase (without offsetting gains from elsewhere)**
- **Long term cost of benefits is about 26% of pay and contributions are same**
  - **Need additional contribution to cover underfunding**
  - **Continually increasing contribution rate absent additional funding**
  - **Longer you wait, the more it costs**

